C8.2.8.

Application of damped AC voltages for PD diagnosis of distrubtion power cables

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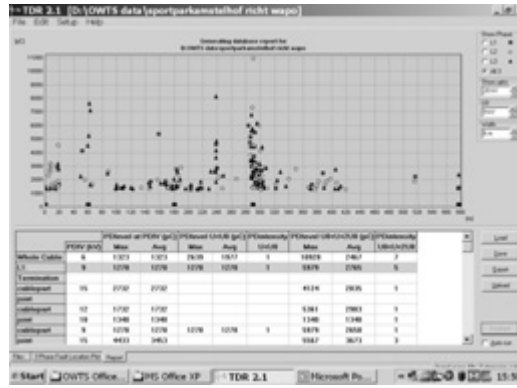
It is known that condition based maintenance can offer a support in meeting requirements of liberalization processes at power utilities. As a result, based on the information about the actual insulation condition of a cable link, the operation, the maintenance and the replacement can optimally be planned.

This contribution discusses based on advanced PD diagnostic at Damped AC voltages different evaluation ways to assess the insulation condition of cable systems. Based on field experiences, important CBM aspects such as insulation defects, selecting diagnostic, performing on-site measurements and collecting data are discussed. Moreover with regard to condition assessment for MV power cables the following conclusions are made:

1. Condition assessment is an important element of Asset Management maintenance approach.
2. Condition assessment means combination of advanced diagnostics and technical information of the actual network situation.
3. With regard to distribution power cables, PD detection is a good method to get insight into discharging insulation defects.
4. Selecting proper advanced PD diagnosis needs evaluation of technical and economical aspects.
5. Using PD diagnosis at DAC voltages PD discharging defects in XLPE and PILC cable insulation can be detected.
6. To use diagnostic information for AM decision support standardised database protocols are necessary.



PD mapping and database protocol made automatically after the 3 phase of the distribution power cable are tested in accordance with the test protocol as shown in figure 10: the mapping of PD amplitudes / intensities as observed at test voltages between PDIV and 2 U_0 (upper part), database report of important PD quantities as observed for the whole cable section and particular insulation parts, joints and terminations (lower part).